

The Management of Meningitis Policy

Infection Prevention and Control

This policy describes the key processes and protocols for patients with a known or suspected diagnosis of meningitis.

It includes the appropriate personnel and organisational contact details for further advice and escalation.

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Version Control and Summary of Changes

Version number	Date	Comment (Description change and amendments)
Version 1	2005	Review and rewriting of guideline based on the community infection control guidelines
Version 2	February 2009	Reviewed and updated in line with national guidance
Version 3	June 2010	Reviewed by Amanda Howell and rewritten incorporating abbreviations, definitions and associated policies and guidelines. Sent out for comments to link staff for adult and children's services, occupational health, HPU, service managers, Infection control subcommittee members.
Version 4 Draft2	July 2010	Comments received and incorporated from: Una Willis-infection control matron, Shelley Jacques-Clinical Governance Lead, Heidi Scott-Smith-Clinical Governance Manager, Helen Burchnall-clinical lead for Childrens physiotherapy, Diane Shields-occupational Health Advisor and Philip Monk- consultant in communicable Diseases
Version 5 Final Copy		Agreed through the clinical Governance Committee
Version 6	August 2011	Harmonised in line with LCRHS, LCCHS, LPT (historical organisations)
Version 7		Updated to review current NICE guidance ¹⁰² and in line with format of LPT policies
Version 8	September 2018	Updated to review current NICE guidance for Meningitis Added information regarding fungal Meningitis Updated information regarding viral and bacterial Meningitis. Removed contradictory information regarding source isolation of bacterial Meningitis

For further information contact: Infection Prevention and Control Team

Definitions that apply to this Policy

Aseptic Meningitis	Another term for viral Meningitis.
Consultant in Public Health	A consultant who is knowledgeable in infectious diseases and works within the field of public health
Contact Tracing	The identification and diagnosis of person who may have come into contact with an infected person.
Cerebrospinal fluid (CSF)	
Haemophilus influenza type B (Hib)	Bacterium capable of causing a range of diseases including ear infections, cellulitis (soft tissue infection), upper respiratory infections, pneumonia, and such serious invasive infections as Meningitis with potential brain damage and epiglottitis with airway obstruction, It spreads by droplet through coughs and sneezing.
Infection	An organism presents at a site and causes an inflammatory response, or where an organism is present in a normally sterile site.
Immunocompromised	An immune system that is impaired by disease or treatment, where an individual's ability to fight infection is decreased.
Immunosuppression	Suppression of the immune response, usually by disease or by drugs
Inflammation	The body's immune reaction to presumed foreign substances like germs. Inflammation is characterised by increased blood supply and activation of defence mechanisms. It can produce redness, swelling, heat and pain.
Meningitis	Inflammation of the meninges (lining of the brain)
Meningococcal bacteria	Meningococcal disease is any infection caused by meningococcal bacteria
Neisseria meningitides	Neisseria meningitides is a heterotrophic gram-negative diplococcal bacterium best known of its role in Meningitis and other forms of meningococcal disease such as meningococemia
Organisms	This is defined as any living thing, in medical terms bacteria and viruses are referred to as organisms.
Outbreak	The occurrence of two or more cases of the same infection linked in time or place or, the situation when the observed number of cases exceeds the number expected
Polymerase Chain Reaction (PCR)	A laboratory technique for rapidly synthesising large quantities of a specific DNA segment
Personal Protective Equipment (PPE)	Specialised clothing or equipment worn by employees for protection against health and safety hazards, gloves, aprons, gowns masks and eye protection.
Sepsis	<i>Sepsis</i> is the body's overwhelming and life-threatening response to infection that can lead to tissue damage, organ failure, and death. Your body's over active and toxic response to an infection.

Source Isolation	Isolation for the control of infection is used to prevent infected patients from infection others
Streptococcus pneumonia	The bacteria that most often causes pneumonia
Symptomatic	Physical or mental sign of disease

1.0 Purpose of the policy

The aim of this policy is to provide guidance to staff employed by Leicestershire Partnership Trust (LPT) with regards to caring for patients who are known or suspected of having Meningitis. The policy will describe the different types of Meningitis and the relevant care and precautions required with regards to infection prevention and control.

2.0 Summary and Key Points

Meningitis is inflammation of the meninges. There are three different types of Meningitis, fungal which is non-infectious, viral and bacterial.

Viral Meningitis is not usually as serious as bacterial Meningitis and often patients will recover on their own without any treatment, although there can be long term effects on a patients personality

Bacterial Meningitis is not as common as viral Meningitis, however if not acted upon immediately can have life limiting consequences for the patient, or even be life threatening. Bacterial Meningitis can be treated with appropriate antibiotics,

Meningitis is a notifiable disease and any patients with known or suspected Meningitis must be reported immediately to Public Health England (PHE).

It is imperative that a correct diagnosis is made as soon as possible as the potential outcomes from bacterial and viral Meningitis will differ. Patients with a new known or suspected diagnosis of Meningitis should be referred immediately to accident and emergency by dialling 999.

3.0 Introduction

The purpose of this policy is to ensure that all staff employed by LPT are aware of the correct procedure and precautions to take when caring with patients with known or suspected Meningitis.

The policy will ensure that all staff employed by LPT are providing evidence based care which is in accordance with the Health and Social Care Act (2015) and the latest guidance provided by PHE.

4.0 The Management of Suspected (or confirmed) Meningitis

Meningitis is inflammation of the protective membranes covering the brain and spinal cord. This covering is called the meninges. The inflammation can be caused by bacteria, viruses, fungi or parasites. Both bacterial and viral Meningitis will present in the same way and the clinical history, examination, and investigations will be the same. However following the findings of the clinical investigation the specific treatment and prognosis are different.

It is imperative that a correct diagnosis is made as soon as possible as the potential outcomes from bacterial and viral Meningitis will differ.

Patients with newly diagnosed known or suspected Meningitis should be referred immediately to the acute emergency services by dialling 999.

It is thought that the number of cases of Meningitis in the UK is widely underreported, despite it being a notifiable disease. (Please refer to the infection prevention and control “notifying known or suspected infectious diseases policy”).

It is essential that all cases of Meningitis are notified immediately to PHE, (East Midlands Unit). Their telephone number is as follows:

0344 225 4524 (Option 1)

Ask for the doctor on-call for public health who will decide which contacts should be offered antibiotic chemoprophylaxis or vaccination

*Do Not wait until a microbiological diagnosis has been made.

Source isolation precautions should be commenced immediately if Meningitis is suspected but the type is not known.

4.1 Fungal Meningitis

Fungal Meningitis is very serious, but also very rare. It is mainly limited to people who have impaired immune systems, such as people with cancer or those who have had surgical procedures.

Fungal Meningitis is not contagious and therefore source isolation precautions are not necessary.

4.2 Viral Meningitis

Viral Meningitis is more common; however it is usually self-limiting and generally has no long term physical effects. If you have close contact with a patient who has viral Meningitis you are at risk of contracting the virus that caused the Meningitis, but unlikely to contract viral Meningitis itself.

There can however be after effects of viral Meningitis, such as

- Exhaustion
- Headaches
- Memory loss
- Anxiety
- Depression
- Dizziness/balance problems
- Hearing difficulties
- Mood swings
- Aggression

These changes may not be immediately apparent following viral Meningitis; they can take months or even years to develop.

The viruses that can cause viral Meningitis are:

- Non-polio enteroviruses
- Mumps virus
- Herpes virus, including Epstein-Barr virus, herpes simplex virus and varicella-zoster virus
- Measles virus
- Influenza virus
- Arboviruses
- Lymphocytic choriomeningitis virus

Most people with viral Meningitis usually recover without treatment within 7 – 10 days

Although the viruses which cause these diseases tend to be highly infectious (as they are shed in respiratory secretions and/or faeces). They rarely result in cross infection resulting in meningitis. Most contacts will have a mild respiratory infection and will not have meningitis. Viruses can be transmitted by the faecal-oral, the respiratory route or by direct close contact.

The period of infectivity to others is before and during acute illness and as the virus can be transmitted to others, source isolation precautions should be implemented until the patient has clinically recovered, which will be determined by the clinician caring for the patient or the patient is discharged home.

It is difficult to be prescriptive as to when a patient is deemed to be clinically recovered as each patient will present differently, but the lack of symptoms such as vomiting, loose stools, a cough or sneezing would be an indicator to the clinician caring for the patient, alongside a holistic overview of the patient's condition, that the patient is recovering.

4.3 Bacterial Meningitis

This type of Meningitis, whilst not as common as viral Meningitis is much more serious. If not recognised early it can have severe life limiting outcomes, such brain damage, hearing loss, learning disabilities, loss of limb. It can in some cases lead to death of the patient.

Bacterial Meningitis is an infection of the surface of the brain (meninges) by bacteria that have usually travelled there from mucosal surfaces via the bloodstream.

There are several types of bacteria that can cause Meningitis:

- *Streptococcus pneumoniae*
- Group B *Streptococcus*
- *Neisseria meningitidis*
- *Haemophilus influenzae*
- *Listeria monocytogenes*

Common causes of bacterial Meningitis vary by age group:

- **Newborns:** Group B *Streptococcus*, *Streptococcus pneumoniae*, *Listeria monocytogenes*, *Escherichia coli*
- **Babies and children:** *Streptococcus pneumoniae*, *Neisseria meningitidis*, *Haemophilus influenzae* type b (Hib), group B *Streptococcus*
- **Teens and young adults:** *Neisseria meningitidis*, *Streptococcus pneumoniae*
- **Older adults:** *Streptococcus pneumoniae*, *Neisseria meningitidis*, *Haemophilus influenzae* type b (Hib), group B *Streptococcus*, *Listeria monocytogenes*

It is important that once Meningitis is suspected, whether it is viral or not, antibiotics are administered as soon as possible to ensure the best outcome for the patient. It will be difficult initially to determine whether the Meningitis is viral or bacterial in nature, although viral Meningitis is generally less severe in presentation. However a delay in treatment for bacterial Meningitis can be fatal or result in amputation of limbs for the patient. Therefore antibiotics should be administered on clinical suspicion of Meningitis and then tests undertaken to determine the diagnosis.

Patients diagnosed with bacterial Meningitis should have source isolation precautions commenced immediately. These should remain in place until appropriate antibiotics have been administered for a minimum of 24 hours.

Some types of Meningitis may in fact be non-infectious after a shorter treatment period of antibiotics but as the antibiotics should be administered prior to the diagnosis being confirmed ensuring that the source isolation precautions are continued for this time will guarantee that the patient is no longer infectious and therefore that other patients are not at risk.

Bacterial Meningitis can be spread by close contact with respiratory droplets. Healthcare workers are not at a higher risk of contracting the disease than other persons unless they have been directly exposed to the patient's oral secretions (i.e.; through mouth-to-mouth resuscitation, which is not encouraged within LPT, endotracheal intubation or endotracheal tube management.

The decision to administer prophylaxis treatment to close contacts of the patient will be taken in consultation with the infection prevention and control team and PHE.

As a general rule, close contacts are defined as those persons:

- Living with an infected patient
- Having a recent history of kissing contact, or mouth-to-mouth resuscitation
- Involved in procedures such as emergency intubation

5.0 Signs and symptoms of Meningitis

As previously discussed it can be difficult to differentiate between viral and bacterial Meningitis as the symptoms are very similar:

- Fever
- Irritability (especially in babies)
- Poor appetite
- Sleepiness or trouble waking from sleep
- Lethargy
- Headache
- Stiff neck (nuchal rigidity)
- Sensitivity to bright light
- Nausea
- Vomiting
- Eye discomfort in bright lights (photophobia)
- Change in mental status

The signs and symptoms on their own might not alert health professionals to Meningitis as a diagnosis. However, when a patient presents with a combination of the signs and symptoms as detailed above, medical and healthcare staff should be alerted to the likely possibility of a diagnosis of Meningitis and immediate action taken.

The clinical presentation may also differ between different populations, for example the elderly population are more likely to have an altered conscious level but less likely to have neck stiffness or fever; however this may not always be the case.

Patients with pneumococcal disease are more likely to have seizure, focal neurological symptoms and a reduced conscious level (as determined by the Glasgow Coma Scale).

Patients with Neisseria Meningitis are more likely to present with a rash.

6.0 Diagnosing Meningitis

The following investigations must be sent urgently to microbiology:

- Throat swab (for Neisseria meningitides)
- Throat swab for viral culture
- Blood culture
- CSF (where appropriate) for bacterial culture and viral investigations and PCR
- Blood in EDTA (full blood count bottle) for Neisseria meningitides and Streptococcus pneumoniae PCR
- Serum (5ml clotted blood) for antibody test
- Faeces for viral culture

Treatment must not be delayed for the test results.

A comparison of CSF results helps distinguish between bacterial and viral causes:

	Glucose	Protein	WBC	Type of cells
Bacterial	Normal to decreased	Increased	> 1000/mm ³	Neutrophils
Viral	Normal	Normal to increased	< 100/ mm ³	Lymphocytes

If the patient has not had any antibiotics, the gram stain in bacterial Meningitis will be positive, whereas it will be negative for viral Meningitis. Bacterial antigen tests and cultures will further determine the specific organisms.

Some age groups of the population are more susceptible to different types of Meningitis. Listeria or pneumococcal disease is more common in the elderly population, viral Meningitis is more common in people aged in their 20's – 40's and meningococcal infection is more common in adolescents and young adults.

7.0 Staff contact with Meningitis

If any staff are in contact with patients with known or suspected meningitis and are concerned they should contact Occupational Health (0116 2255432) for further advice.

8.0 Training

There is no specific training requirement regarding this policy. However staff that may come into contact with patients who may have a potential prerequisite to this disease may require further training and/or development.

9.0 References and bibliography

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PRIVACY IMPACT ASSESSMENT SCREENING

<p>Privacy impact assessment (PIAs) are a tool which can help organisations identify the most effective way to comply with their data protection obligations and meet individual's expectations of privacy. The first step in the PIA process is identifying the need for an assessment.</p> <p>The following screening questions will help decide whether a PIA is necessary. Answering 'yes' to any of these questions is an indication that a PIA would be a useful exercise and requires senior management support, at this stage the Head of Data Privacy must be involved.</p>			
Name of Document:	The management of Meningitis policy. Infection prevention and control		
Completed by:	Mel Hutchings		
Job title	Infection Prevention and Control Nurse	Date	22/05/18
			Yes / No
1. Will the process described in the document involve the collection of new information about individuals? This is information in excess of what is required to carry out the process described within the document.			No
2. Will the process described in the document compel individuals to provide information about themselves? This is information in excess of what is required to carry out the process described within the document.			No
3. Will information about individuals be disclosed to organisations or people who have not previously had routine access to the information as part of the process described in this document?			No
4. Are you using information about individuals for a purpose it is not currently used for, or in a way it is not currently used?			No
5. Does the process outlined in this document involve the use of new technology which might be perceived as being privacy intrusive? For example, the use of biometrics.			No
6. Will the process outlined in this document result in decisions being made or action taken against individuals in ways which can have a significant impact on them?			No
7. As part of the process outlined in this document, is the information about individuals of a kind particularly likely to raise privacy concerns or expectations? For examples, health records, criminal records or other information that people would consider to be particularly private.			No
8. Will the process require you to contact individuals in ways which they may find intrusive?			no
<p>If the answer to any of these questions is 'Yes' please contact the Head of Data Privacy Tel: 0116 2950997 Mobile: 07825 947786 Lpt-dataprivacy@leicspart.secure.nhs.uk In this case, ratification of a procedural document will not take place until approved by the Head of Data Privacy.</p>			
IG Manager approval name:			
Date of approval			

Acknowledgement: Princess Alexandra Hospital NHS Trust

Contribution List

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